MALARIA

WHAT IS MALARIA

Malaria is a disease of humans which can kill. It is caused by a small parasite that lives in the blood. Malaria is particularly dangerous to young children and pregnant mothers.

The parasite is an organism known as a protozoan and has the scientific name *Plasmodium*. Other protozoans known to cause disease in people in Afghanistan include *Entamoeba*, (amoebic dysentery) and *Giardia* (intestinal parasite that also causes diarrhoea).

There are two species of *Plasmodium* found commonly in Afghanistan. They are called *Plasmodium vivax*, and *Plasmodium falciparum*. *Plasmodium vivax* is the most common disease in Afghanistan and does not normally kill. However, *Plasmodium falciparum* can kill if not treated quickly.

HOW DO YOU KNOW WHEN YOU HAVE MALARIA

Malaria normally causes high fevers with intermittent periods of fever and sweating. Associated with the fever you may get painful joints, headaches and vomiting.

As malaria can kill, if you think you have malaria or any of the above symptoms, you should see a health worker immediately.

HOW DO YOU CATCH MALARIA

Malaria can only be caught through the bites of certain types of female mosquitoes.

To prevent malaria you must prevent mosquito bites.

THE MALARIA LIFE CYCLE

Malaria parasite live in the blood.

When a mosquito bites a person infected with malaria, the malaria parasites pass into the mosquito.

Within the mosquito the parasites multiply and pass to the salivary glands of the mosquito.

When a mosquito bites another person, the mosquito first spits out some saliva to stop the blood clotting. If the mosquito is infected with malaria parasites, the parasites now pass into the new person.

In the new person, the parasites first pass into the liver for a few days and then pass back into the blood. After about ten days of being bitten by an infected mosquito the person will start to get sick.

In the case of *Plasmodium vivax*, a few of the parasites remain in the liver where they rest. In the liver, the parasites are protected from drugs and are not killed. Therefore, even when a person is treated with Vivax malaria and cured, he may then get malaria again without being bitten again by another mosquito. This occurs when the parasites that remain in the liver now decide to invade the blood again.

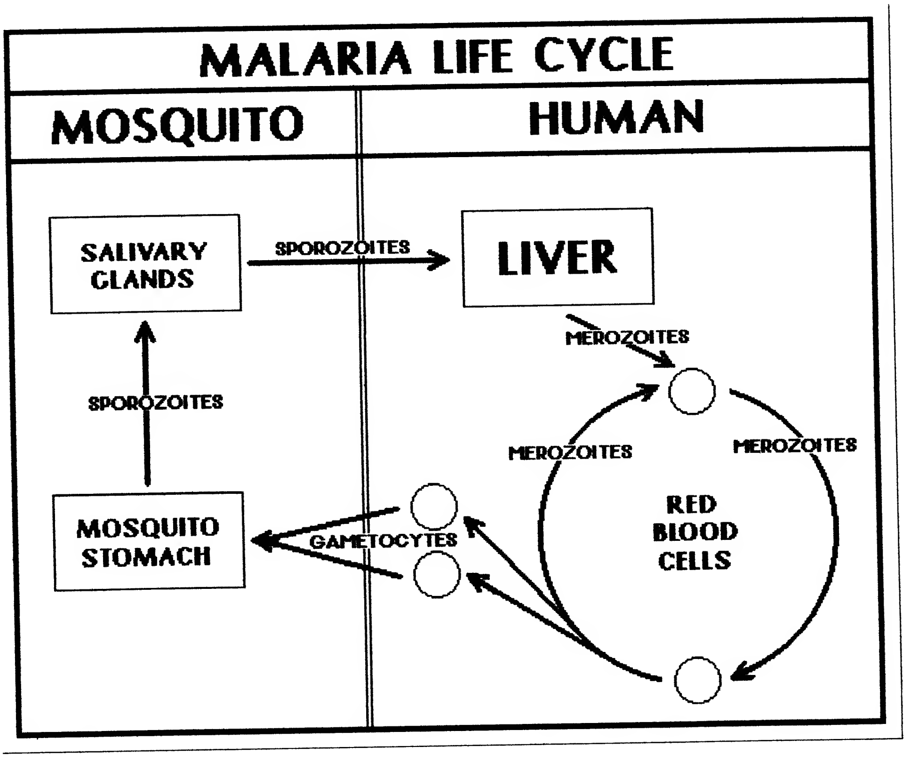


Fig. 1 - Life Cycle Of *Plasmodium*

ABOUT MOSQUITOES

There are two types of mosquitoes known as Culicines and Anophelines. Only Anophelines transmit malaria and can be recognised because when they rest their bodies stick into the air (See Fig.2). Culicines rest parallel to the resting surface and do not transmit malaria (See Fig. 3).

Mosquitoes only breed in water.

About once every three days, female mosquitoes lay eggs in water. The eggs float on the top of the water and hatch within two days.

The eggs hatch to give what are knows as larvae. The larvae do not look like adult mosquitoes and live and feed in water. When they are fully grown they are about one centimetre long and wriggle like a snake.

After a few days the larvae change into a resting stage known as pupae. Pupae do not feed and in about two days hatch out into new adult mosquitoes.

It must be remembered that

- **mosquitoes can only breed in water**
- **in warm conditions, it takes about seven days for mosquitoes to develop from egg to adult.**
- **mosquitoes are never born with malaria, they must first catch it from a human host.**
- **mosquitoes that transmit malaria only bite at night.**

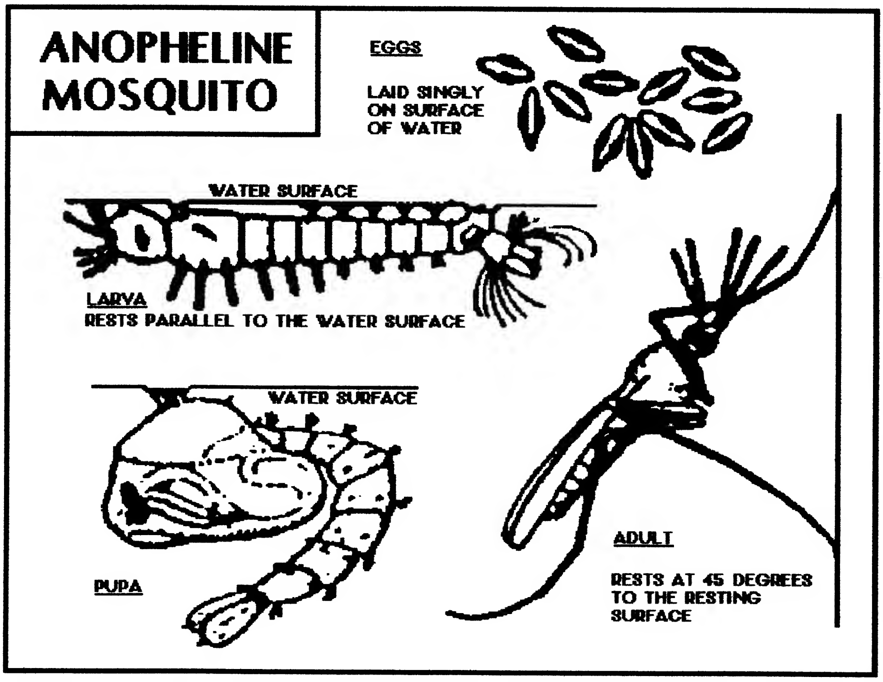


Fig. 2 - Anopheline Mosquito

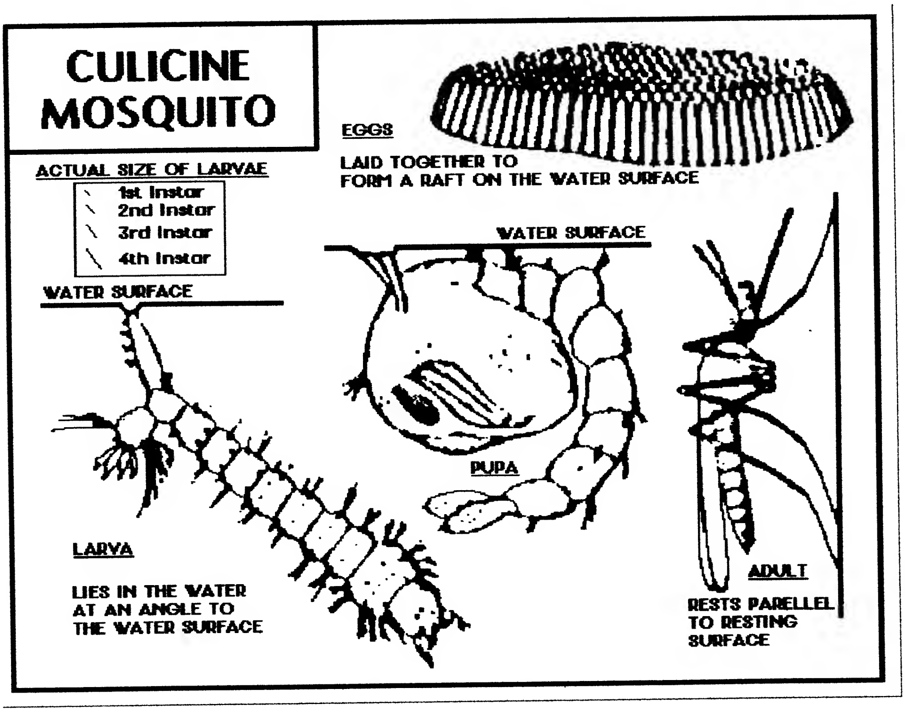


Fig. 3 - Culicine Mosquito

WHERE IS MALARIA FOUND IN AFGHANISTAN

Malaria thrives in warm wet conditions.

Malaria can only be transmitted where the conditions are hot and where there is plenty of water. Malaria is therefore found in Afghanistan only in low lying areas during the summer when the conditions are hot. Malaria is not transmitted in the winter or in cold areas such as in the mountains.

Plasmodium vivax can survive at lower temperatures so can be found at higher altitudes than *Plasmodium falciparum*. It is believed that Plasmodium falciparum may only be transmitted up to an altitudes of about 1600 m, whereas Plasmodium vivax may be transmitted up to about 2300m (See Fig. 4), but the high the altitude, the less the malaria.

Plasmodium vivax can be caught easily from April to November, while *Plasmodium falciparum* is most easily caught from September to November.

The worst infect areas for malaria in Afghanistan are Eastern Zone, Khost, in the south of the country such as Kandahar and in the low lying areas of the north of the country such as Kundus and Tahkar.

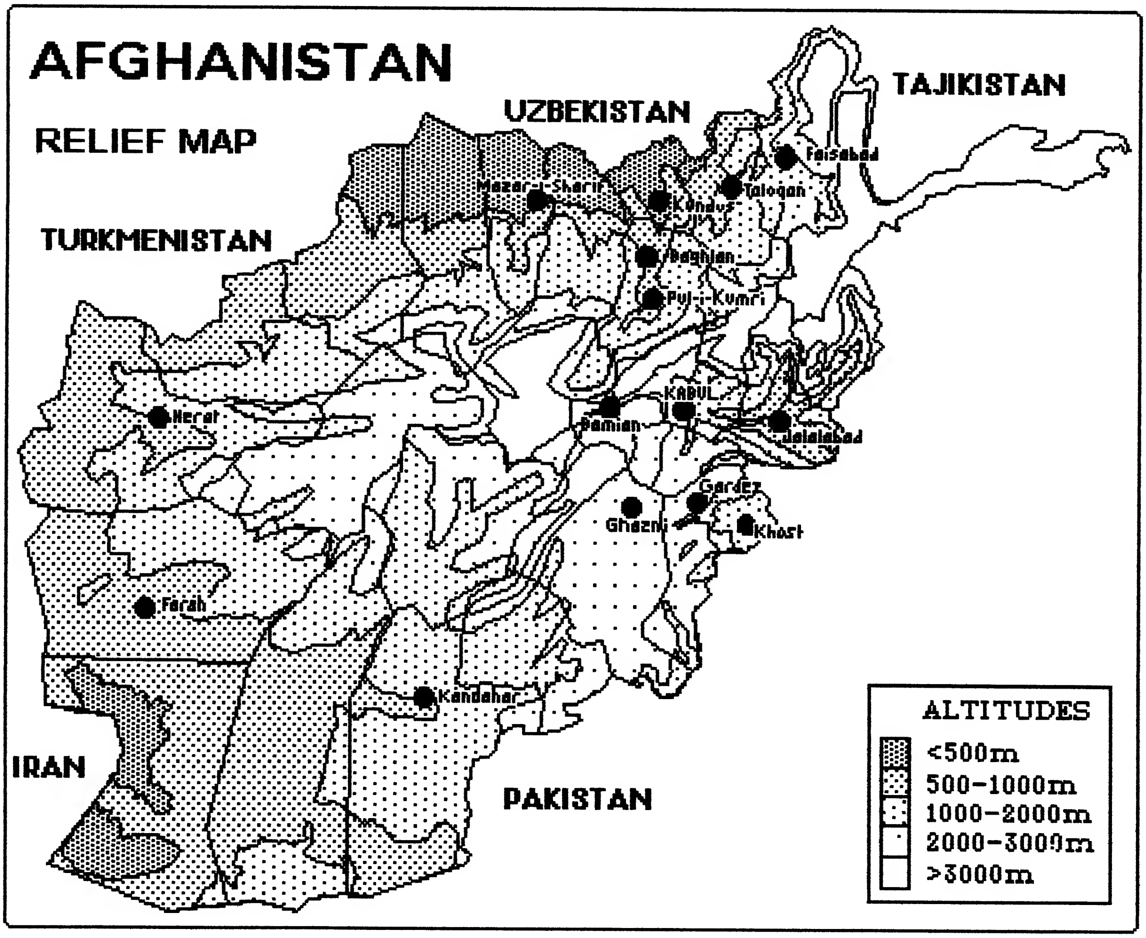


Fig. 4 - Altitudes In Afghanistan

However, it must be remember that water is also very important. Malaria cannot occur in a desert. However, much of Afghanistan has irrigation systems, and it is within the irrigation systems that mosquito breed and flourish.

HOW TO PREVENT MALARIA

Preventing malaria is usually much cheaper that curing malaria. When one get malaria, one usually loses money through lost work, paying to see a doctor, having to have laboratory tests and lastly by having to buy drugs.

PREVENTION IS BETTER AND CHEAPER THAN TREATMENT

Besides the cost in money, malaria might cost you or one of your family their life.

GOOD HEALTH IS BETTER THAN HAVING MALARIA

More importantly perhaps is that malaria is often difficult to cure because of drug resistance. Prevention on the other hand is very easy.

To prevent malaria, all one has to do is to prevent mosquitoes bites by either preventing mosquitoes from biting or by killing mosquitoes.

Stop Mosquitoes Bites.

- **Use a mosquito net at night** - Mosquito net may be expensive to buy but they can last many years. While sleeping under a good mosquito net, mosquitoes cannot reach a person sleeping under them.

- **Screen the house with netting, curtains or gauze over doors and windows** - any type of screen is good, but wire screens used on windows and doors is best as it is usually tight fitting.

- **Use repellents at night, especially outside** - Repellents are medicines which are applied to the skin and stop mosquitoes biting for up to eight to ten hours. Repellents are very good as they protect people from mosquito bites both inside and outside of the house.

- **Fumigants such as mosquito coils or electric mats** - These are generally not recommended as they work only within a house and are often very expensive, though they will protect from mosquito bites within the house.

- **Avoid mosquito breeding sites after dark** - Where ever possible, avoid all places with water or where mosquitoes are breeding after dark.

Destroy Adult Mosquitoes

- **Treat mosquito nets, chaddors, curtains and walls with insecticide** - There are now a number of insecticides available which are very safe to people and domestic animals but very dangerous to insect pests such as mosquitoes, flies, cockroaches, scorpions and bed bugs. By treating mosquito nets and curtains in particular, the curtains not only protect a person from mosquitoes entering, they also kill the mosquitoes. This protects not only the person sleeping under the net but also others who are not sleeping with insecticide treated curtains or nets. In terms of mosquito nets, the insecticide also stops the mosquitoes from biting through the netting.

- **Treat domestic animals with insecticides** - Work in Pakistan has shown that

people who keep domestic animals are more likely to catch malaria than those people who do not keep domestic animals. This is because the mosquitoes that transmit malaria in Afghanistan often prefer to bite animals in preference to biting people. This being the case, malaria mosquitoes are first attracted to the smell of animals, and if people are close by the animals, the people then get bitten alongside the animals. Treating domestic animals will not only kill mosquitoes that transmit malaria to man, but the insecticide will also kill all of the other animal parasites such as ticks and flies. By killing the ticks and flies, the animals are happier, healthier and often gain weight and give more milk.

Destroy Mosquito Larvae

Mosquito larvae can live in almost all standing water. Mosquitoes can take as little as a week to breed from eggs to adults. Wherever mosquito larvae or mosquito breeding sites are found they should be destroyed, and it is always important to look for mosquito larvae at least once a week.

- **Do not leave water lying around for more than a week for mosquitoes to breed** - As mosquitoes can take as little as a week to develop from egg to adult, it is very important that water is not left around long enough to mosquitoes to complete there development. This is particularly important where water is being stored for drinking water or for making cement or bricks.

- **Fill in holes where water is not being used** - Holes collect water when it rains. It is therefore very important not to have holes around the household which are of no use which can collect water.

- **Remove weeds where larvae can hide** - Mosquito larvae are eaten by all sorts of other animals such as fish and tadpoles. Where there is a lot of weed, mosquito larvae are able to hide in the weeds and be protected from the fish and other predators.

- **Deepen edges of large ponds** - Often at the edge of ponds small puddles are formed when the water level goes down. When this happens, mosquito larvae are often found because fish and other predators cannot reach. By deepening the edges, these small pools cannot be formed and mosquito larvae are eaten by other animals.

- **Add fish where possible** - There is a small fish in Afghanistan known as *Gambusia* which likes eating mosquito larvae. If these are added to ponds and pools, the fish will eat any mosquito larvae that try to live there.

- **Use oils to cover unused water** - Where water is not being used for drinking, it can be covered with old engine oil, paraffin or diesel oil which will stop

mosquitoes breeding.

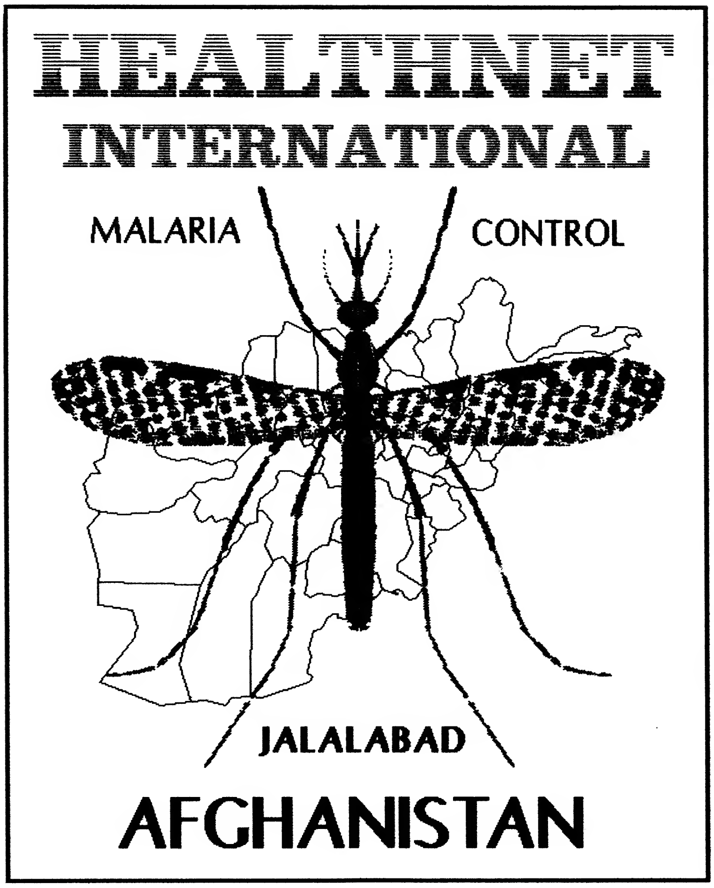
- **Use insecticides** - There are a number of insecticides which can be used to destroy mosquito larvae. These insecticides should be applied weekly. However, before using insecticides you should get expert advice and only a few insecticides are very safe to people and domestic animals.

- **Cover water pots, destroy tin cans etc** - A lot of mosquitoes breed in old containers such as tin cans and tyres. Wherever possible these should be covered up or destroyed so that mosquitoes cannot breed.

Mosquitoes do not usually fly very far from breeding sites. If mosquitoes are biting in the house, this usually means that they are breeding nearby. It is very important to learn how to identify mosquito larvae so that breeding sites can be recognised and destroyed.

CONCLUSIONS

Malaria is a very deadly disease that can be caught in many places in Afghanistan. However, malaria is very easy to prevent, and all householders should protect themselves and their families wherever possible.



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FACTS AND FIGURES

FOR AFGHANISTAN

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